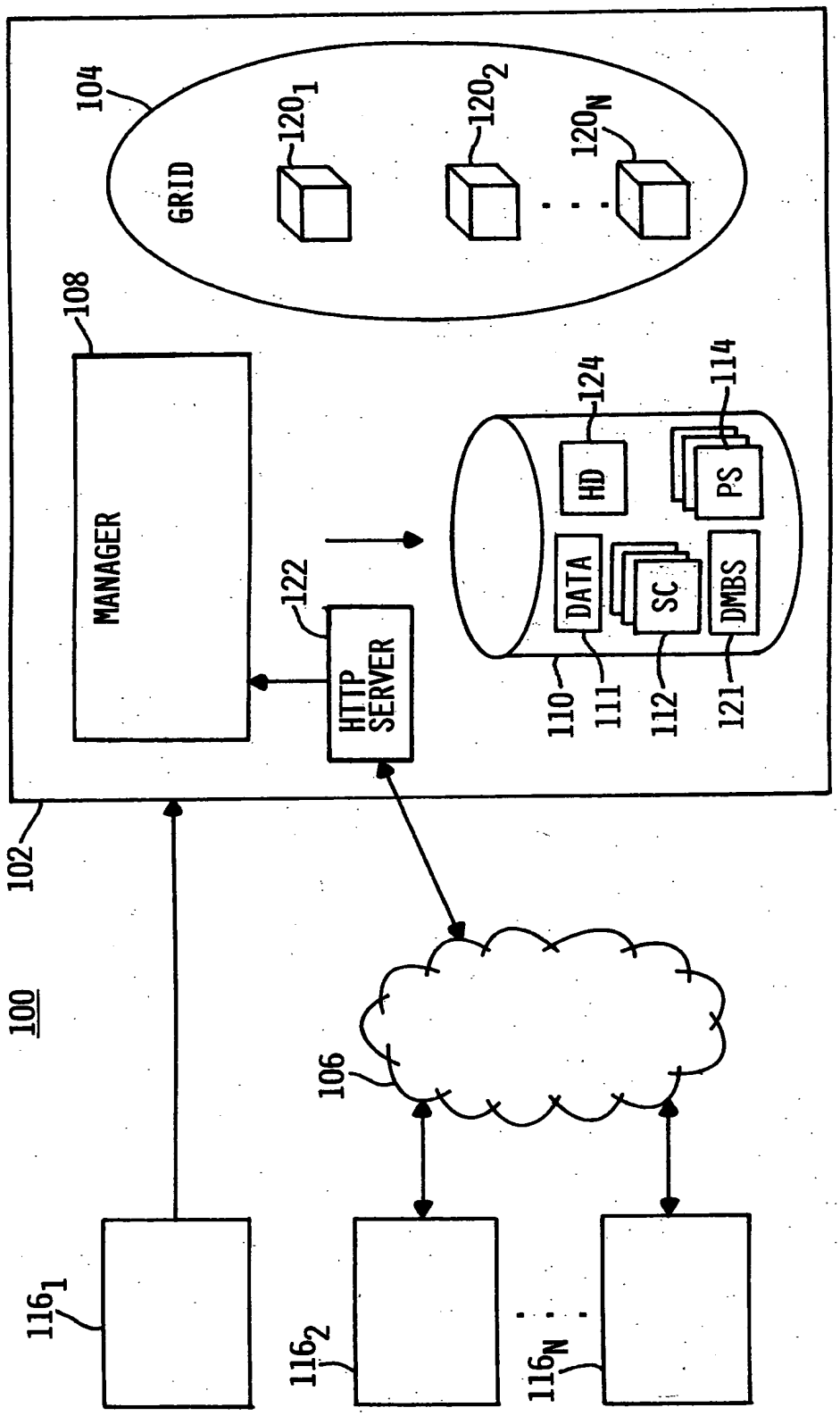
100
102
104
GRID
120_1
120_2
120_N
106
108
MANAGER
122
HTTP SERVER
124
114
HD
PS
DATA
SC
DMBS
110
111
112
121
116_1
116_2
116_N

FIG. 1

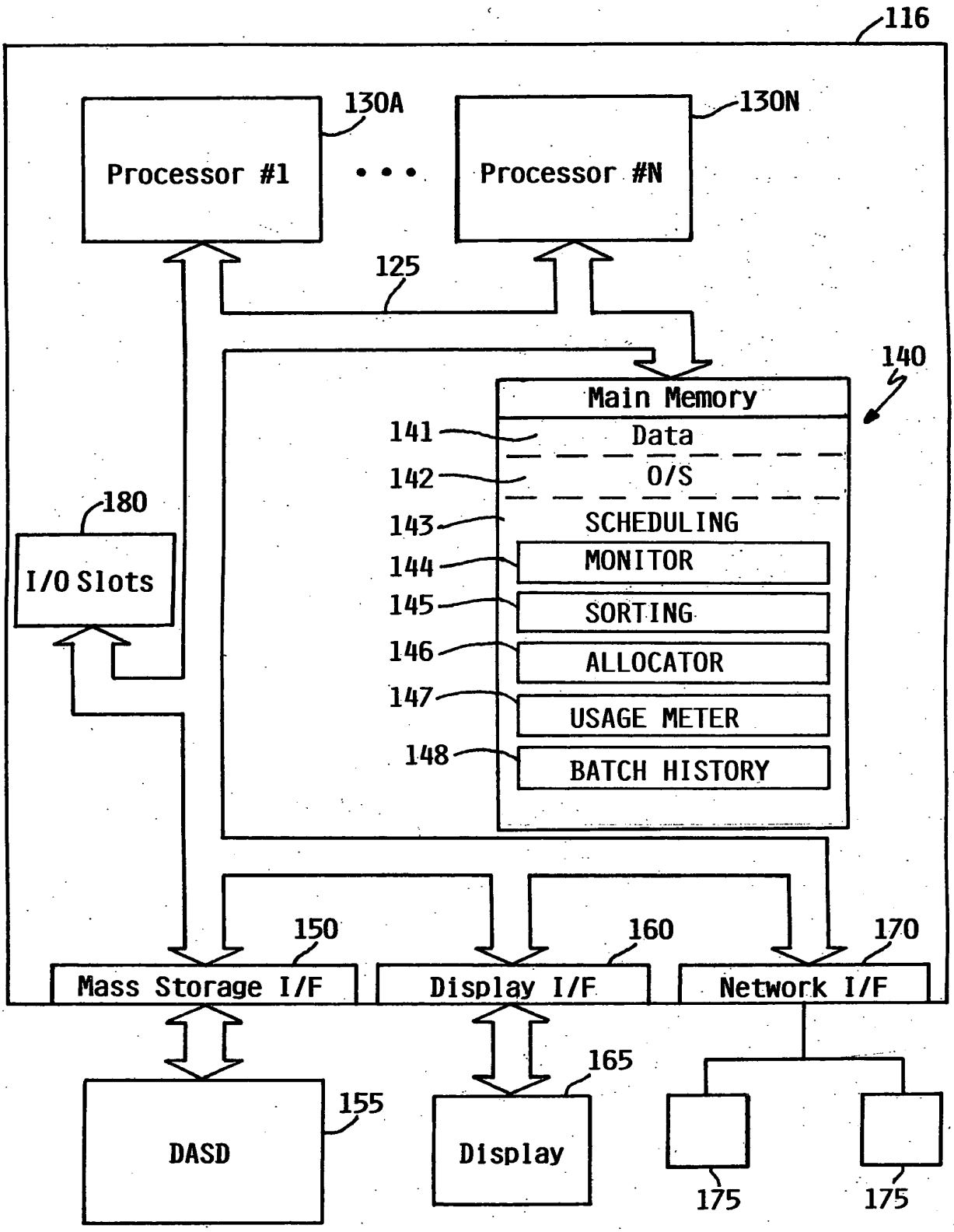
116
130A
Processor #1
• • •
130N
Processor #N
125
140
Main Memory
141
Data
142
O/S
143
SCHEDULING
144
MONITOR
145
SORTING
146
ALLOCATOR
147
USAGE METER
148
BATCH HISTORY
180
I/O Slots
150
160
170
Mass Storage I/F
Display I/F
Network I/F
165
155
DASD
Display
175
175

FIG. 2

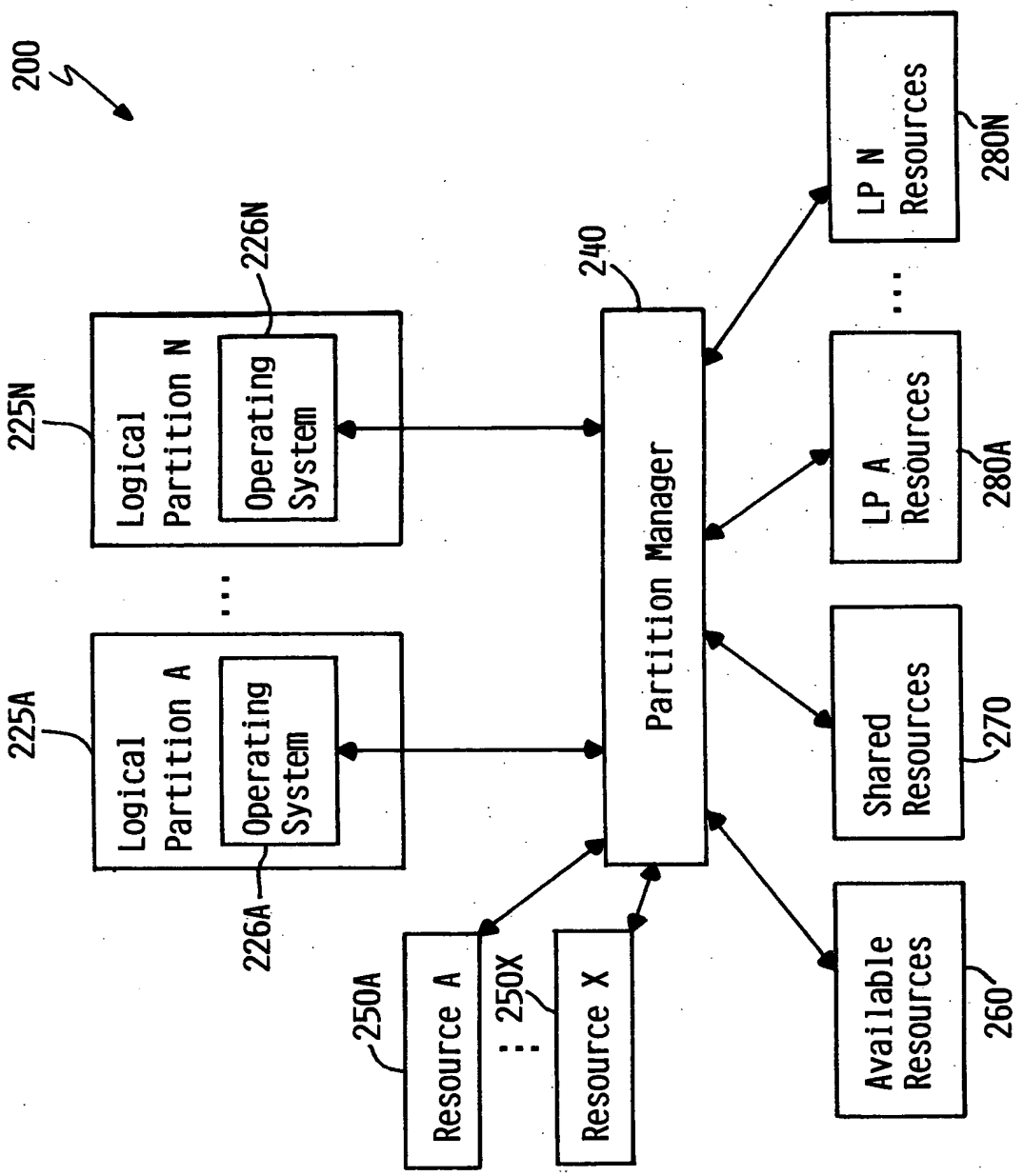
200
Logical Partition N
Operating System
226N
225N
Logical Partition A
Operating System
226A
225A
Partition Manager
240
LP N Resources
280N
LP A Resources
280A
Shared Resources
270
Available Resources
260
Resource A
250A
Resource X
250X

FIG. 3

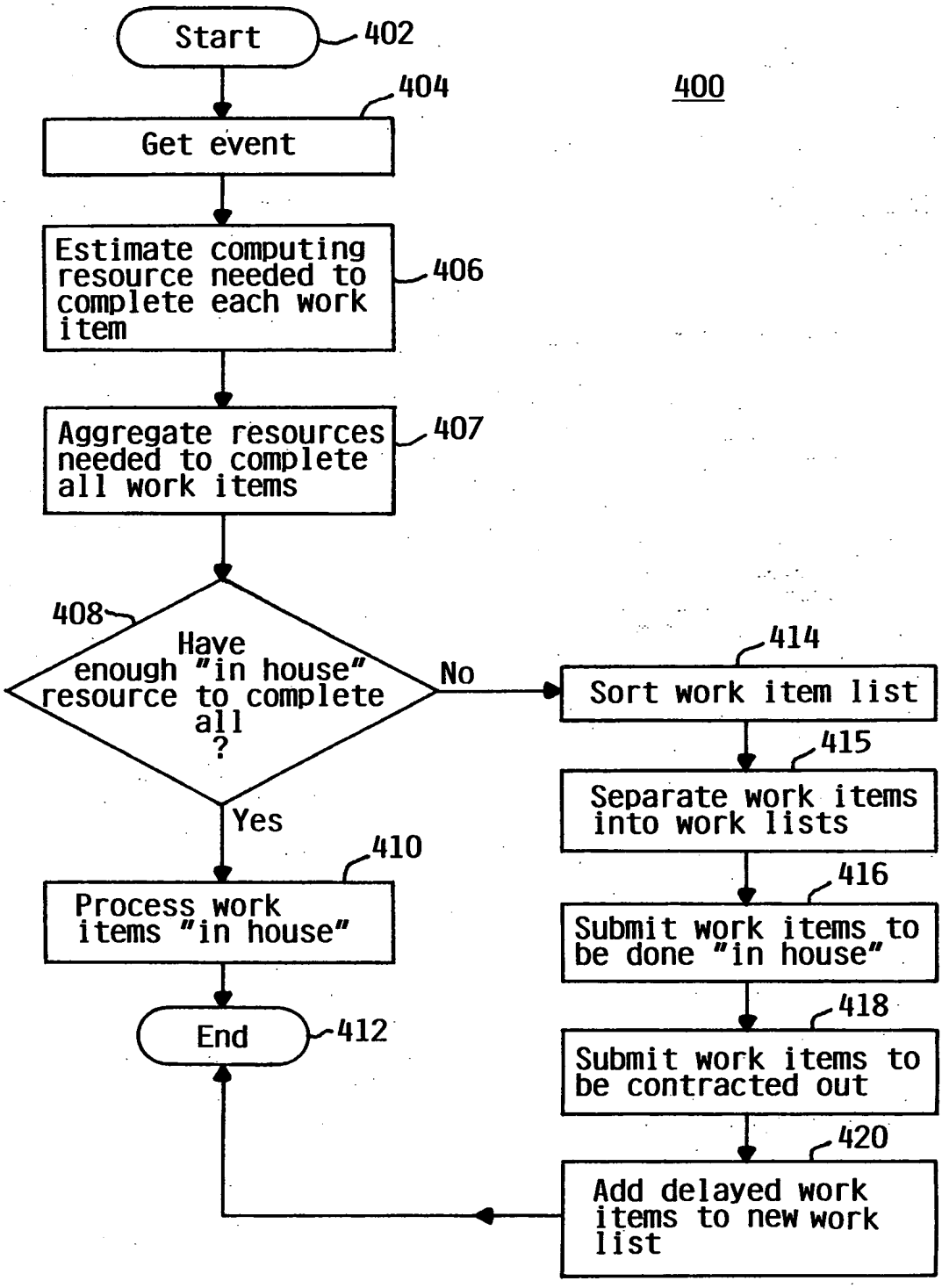
Start
402
400
404
Get event
Estimate computing resource needed to complete each work item
406
Aggregate resources needed to complete all work items
407
408
Have enough "in house" resource to complete all ?
No
Yes
414
Sort work item list
415
Separate work items into work lists
416
Submit work items to be done "in house"
418
Submit work items to be contracted out
420
Add delayed work items to new work list
410
Process work items "in house"
End
412

FIG. 4

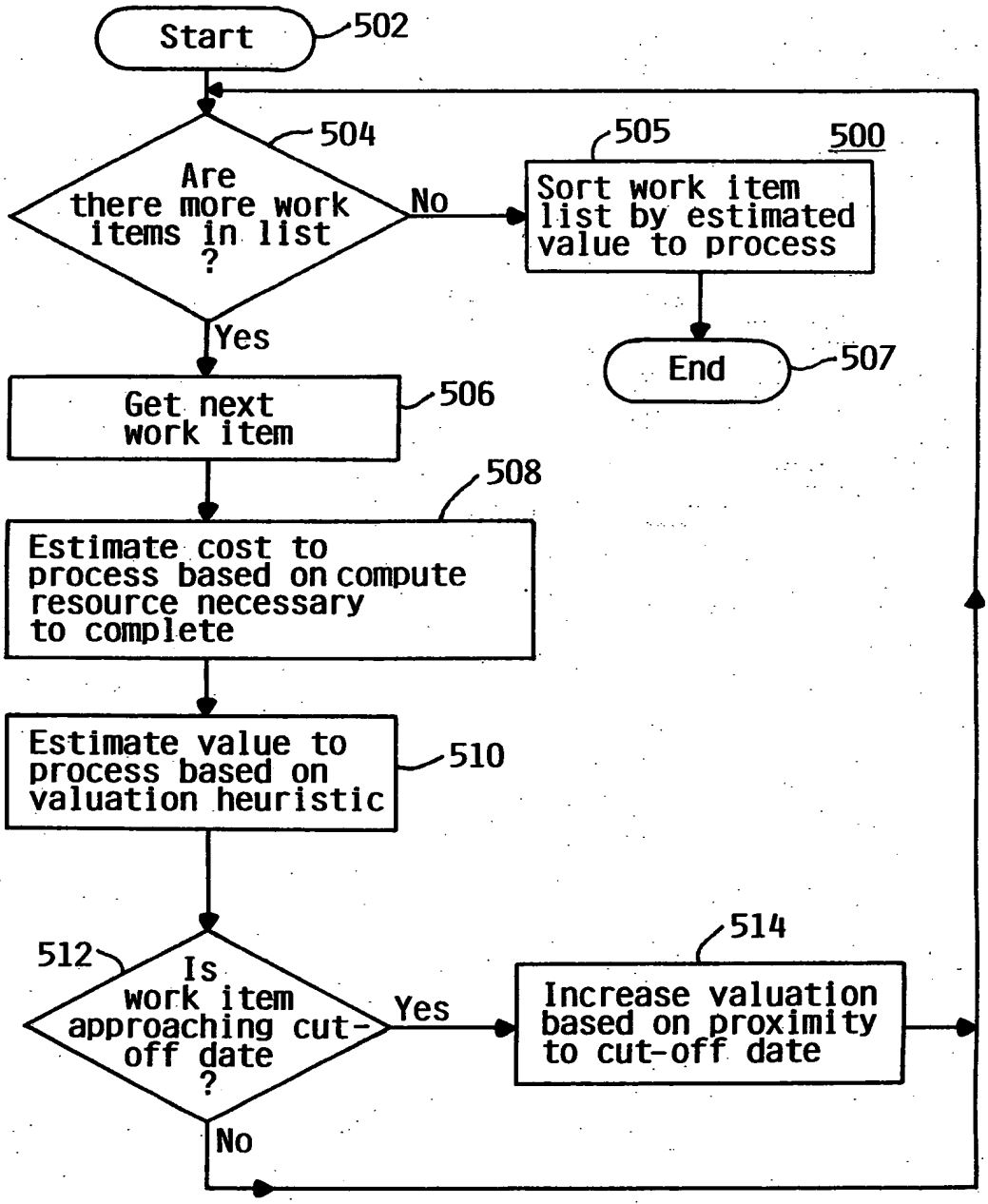
Start
502
Are there more work items in list ?
504
No
505
500
Sort work item list by estimated value to process
End
507
Yes
Get next work item
506
508
Estimate cost to process based on compute resource necessary to complete
Estimate value to process based on valuation heuristic
510
512
Is work item approaching cut-off date ?
Yes
514
Increase valuation based on proximity to cut-off date
No

FIG. 5

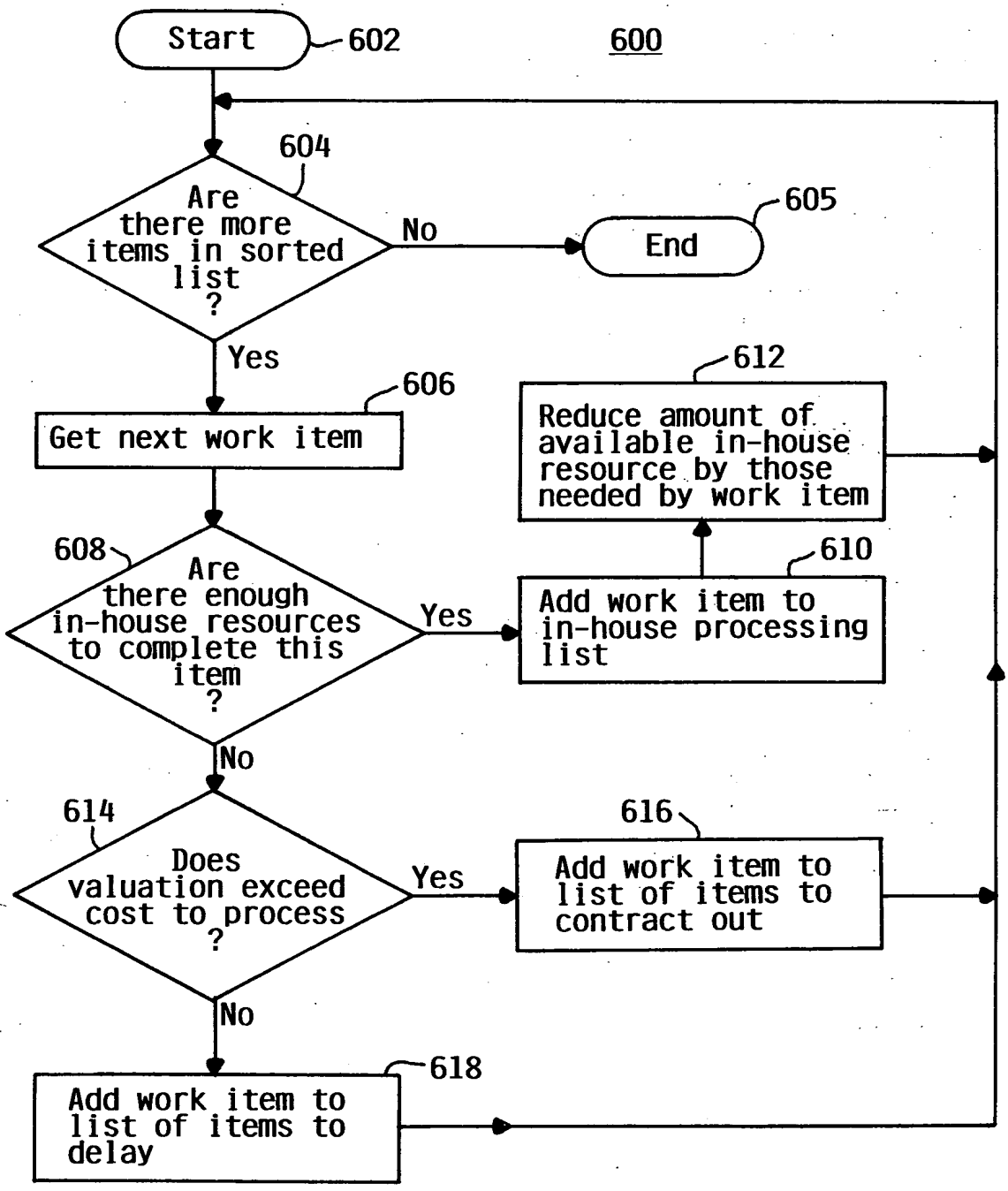
Start
602
600
604
Are there more items in sorted list ?
No
End
605
Yes
606
Get next work item
612
Reduce amount of available in-house resource by those needed by work item
608
Are there enough in-house resources to complete this item ?
Yes
610
Add work item to in-house processing list
No
614
Does valuation exceed cost to process ?
Yes
616
Add work item to list of items to contract out
No
618
Add work item to list of items to delay

FIG. 6

700

Work item list

Work Item ID	Computing Resource Estimate	Cost to Process	Valuation	Cut-off Date
4	10 units	$100	$1000	02/18/2004
1	3 units	$30	$200	02/15/2004
8	7 units	$70	$175	02/23/2004
2	2 units	$20	$50	02/15/2004
5	5 units	$50	$75	02/20/2004
3	1 unit	$10	$24	02/17/2004
9	1 unit	$10	$18	02/23/2004
6	1 unit	$10	$17	02/20/2004
7	3 units	$30	$28	02/22/2004
10	7 units	$70	$60	02/23/2004

710 720 730 740 750

FIG. 7A

In house process list

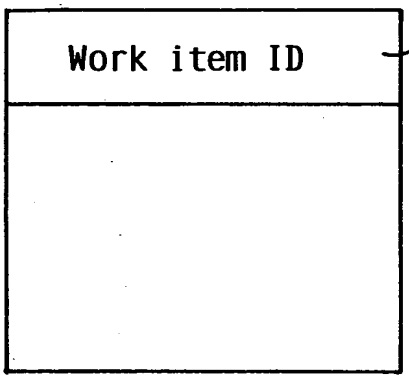

FIG. 7B

Contract out process list

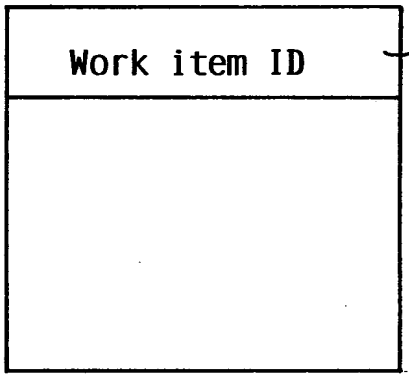

FIG. 7C

Delay list

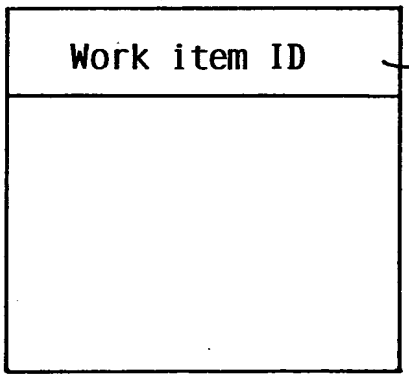

FIG. 7D